

Michigan Clean Fleet Conference

22 March 2006

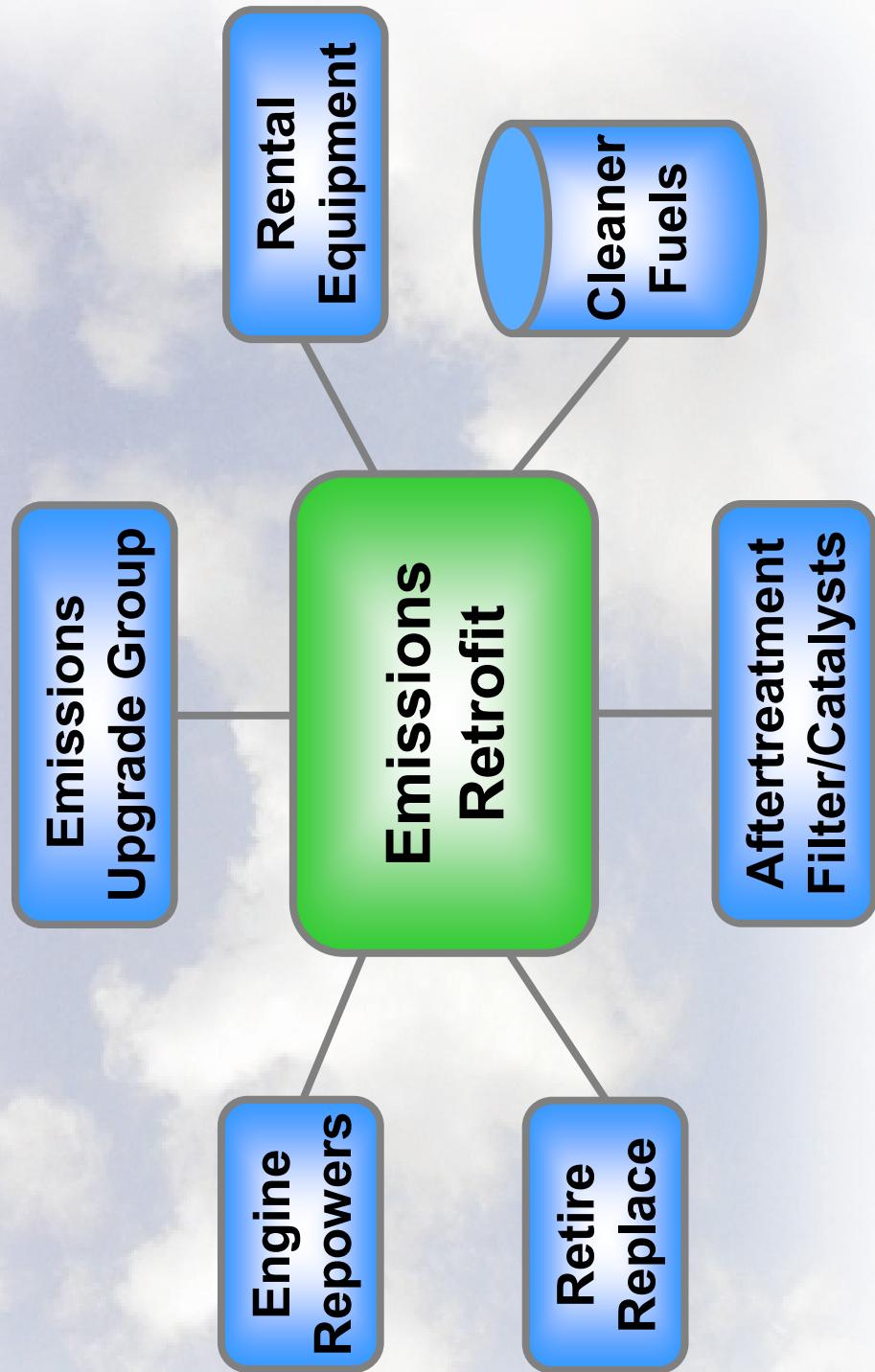
Product Support

Caterpillar. The difference counts.[™]

Steve Hurd
Emissions Retrofit Consultant



Solutions Overview



Product Support

Caterpillar. The difference counts.

This project was undertaken pursuant to an agreement with the United States in connection with settlement of disputed claims in an enforcement action under the Clean Air Act.

DPF Application Considerations

- Engine backpressure limits must not be exceeded
- Engine must be properly maintained
- Packaging - space constraints; variety of applications
- Durability
- Operator visibility
- The ROPS must not be modified
- Passive DPF – sufficient exhaust temperature for regeneration
- Active DPF – logistics of plugging into power source for regeneration

Product Support

Caterpillar. The difference counts.



966G Series II



950G Series I

Caterpillar. The difference counts.

Product Support



966G Series I



966G Series I

This project was undertaken pursuant to an agreement with the United States in connection with settlement of disputed claims in an enforcement action under the Clean Air Act.

Repower Considerations

▪ Installation

- Engine and support systems must fit

▪ Performance

- Specifications must match to maintain the drive train reliability and overall performance

▪ Operation

- No modification can adversely affect the basic machine operation



Product Support

Caterpillar. The difference counts.

School Bus Donation



- This project was done to support the EPA Clean School Bus USA initiative

- In 2004, Cat Dealer Altoffer installed oxidation catalysts on 93 buses for District 150 in Peoria, Illinois

Product Support

Caterpillar. The difference counts.

This project was undertaken pursuant to an agreement with the United States in connection with settlement of disputed claims in an enforcement action under the Clean Air Act.

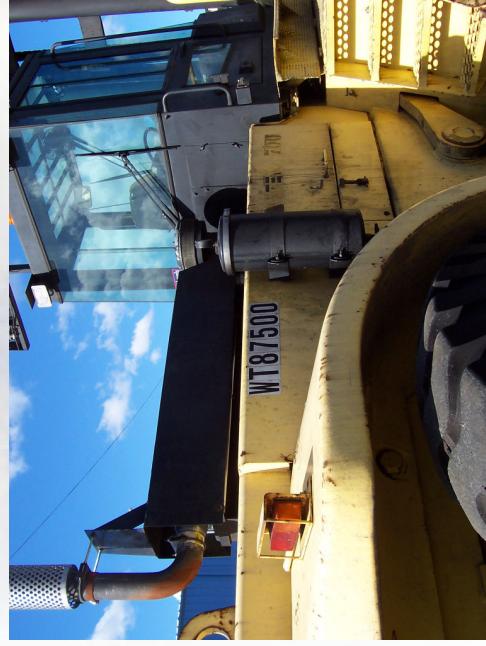
Port of Cleveland Donation

- The purpose of the project is to promote/demonstrate what can be done with the Diesel Emissions Reduction Act grants
- Cat Dealer Ohio Power is retrofitting 26 pieces of cargo handling equipment with oxidation catalysts
 - 20 are complete; expect to be finished by the end of April 2006
 - Muffler replacements that take about 2-3 hours each
 - 8 different machine configurations consisting of small and large fork lifts and boom cranes
 - The engines are from various manufacturers with model years ranging from 1977 – 2003

Product Support

Caterpillar. The difference counts.

Port of Cleveland Donation



Product Support

Caterpillar. The difference counts.

This project was undertaken pursuant to an agreement with the United States in connection with settlement of disputed claims in an enforcement action under the Clean Air Act.

Alternative Diesel Fuels

- Ultra Low Sulfur Diesel (<15 ppm sulfur)
 - ULSD meeting Cat distillate fuel specifications may be used in all Caterpillar engines
- Biodiesel
 - Up to B30 for engines > 150 HP
 - Up to B5 for engines < 150 HP
 - Must meet Caterpillar's biodiesel specification, ASTM D6751, or EN 14214
- Water Emulsified Fuels
 - Lubrizol's PurىNOx fuel may be used in the following engines: 3208, 3304, 3306, 3406B&C, 3408B&C, 3412B&C

Product Support

Caterpillar. The difference counts.